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TITLE: The Effect of Interactive Simulations on Exercise Adherence with Overweight and Obese Adults

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**14. ABSTRACT**

This project was designed to evaluate the effect of video game play on exercise motivation, self-efficacy, and adherence in overweight and obese adults. A prototype stationary exercise bicycle that integrated video game play capabilities was developed and tested. Due to many developments, in late 2010, a new Principal Investigator (MAJ (P) Melba C. Stetz, Ph.D.) took over this project. After properly identifying and complying with all the modifications suggested by the local Scientific Review Committee, the local Human Use Committee, and the Medical Research and Materiel Command, she obtained the Start Letter from her local IRB on 20 DEC 2011.

**15. SUBJECT TERMS**
Bicycle exercise study

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## INTRODUCTION

This study examines the effects of interactivity with video game play on exercise adherence, exercise motivation, and self-efficacy in overweight and obese Army personnel. Despite being younger, less obese, and more physically fit than the average American adult, many active duty personnel are challenged by overweight and obesity. These conditions adversely impact military readiness and mission-related success. While increased activity level has proven to be a critical element in weight loss and improved health, adherence to physical exercise programs has been problematic. Two important mediators of this relationship are self-efficacy and motivation to exercise. Interactive simulations such as video games are highly engaging and provide positive visual and auditory stimulation that may allow participants to enhance and maintain positive exercise behaviors. The project randomizes 60 active duty military participants into 2 exercise groups---one using video game-enhanced exercise bicycles and the other using non-enhanced exercise bicycles. A repeated measures experimental design is used to evaluate group differences in exercise adherence, self-efficacy, and exercise motivation. Secondary variables include cardiovascular fitness, exercise behavior indicators, physiologic changes, health perceptions, and quality of life. The longer-term goal of this effort is to improve the readiness of military personnel and the health status of the general public through the study of innovative applications of new and emerging technologies to treat behavioral health disorders.

## RESEARCH PROJECT STATUS

- ✓ **Task 1: Submit protocol for IRB and second level review approval**

  *Done.* The version that MAJ (P) Stetz submitted, with all suggested modifications, was approved. Start Letter was obtained on 20 DEC 2010.

- ✓ **Task 2: Evaluate, purchase, setup equipment and physiologic monitors**

  *Done.* All the needed equipment and material was purchased.

- ✓ **Task 3: Develop, install, test software to capture exercise data**

  *Done.* The equipment, hardware, and software got tested for use.

- ✓ **Task 4: Hire & train research staff on equipment and protocol procedures**

  *Done.* The new Principal Investigator is no cost to this project due to her military status. However, Project Coordinator, Research Assistants, and Computer Techs were hired to help set and run this project (see Appendix A).

- ✓ **Task 5: Pilot test procedure & equipment (no data collection)**

  *Done.* Initial testing of connectivity and functionality was completed.

- ✓ **Task 6: Recruit & identify participants**
  Participant recruitment is projected to start around MAR (2011) to be followed by data collection.

**Task 7: Assess, randomize, run study**
TBA

**Task 8: Analyze data and complete final report**
TBA

## CONCLUSION

Approval was obtained and the research staff and systems are ready to start recruiting participants and collecting the data.

## REFERENCES

Not applicable at this time.

## APPENDICES

Appendix A: Photos of data system being tested.